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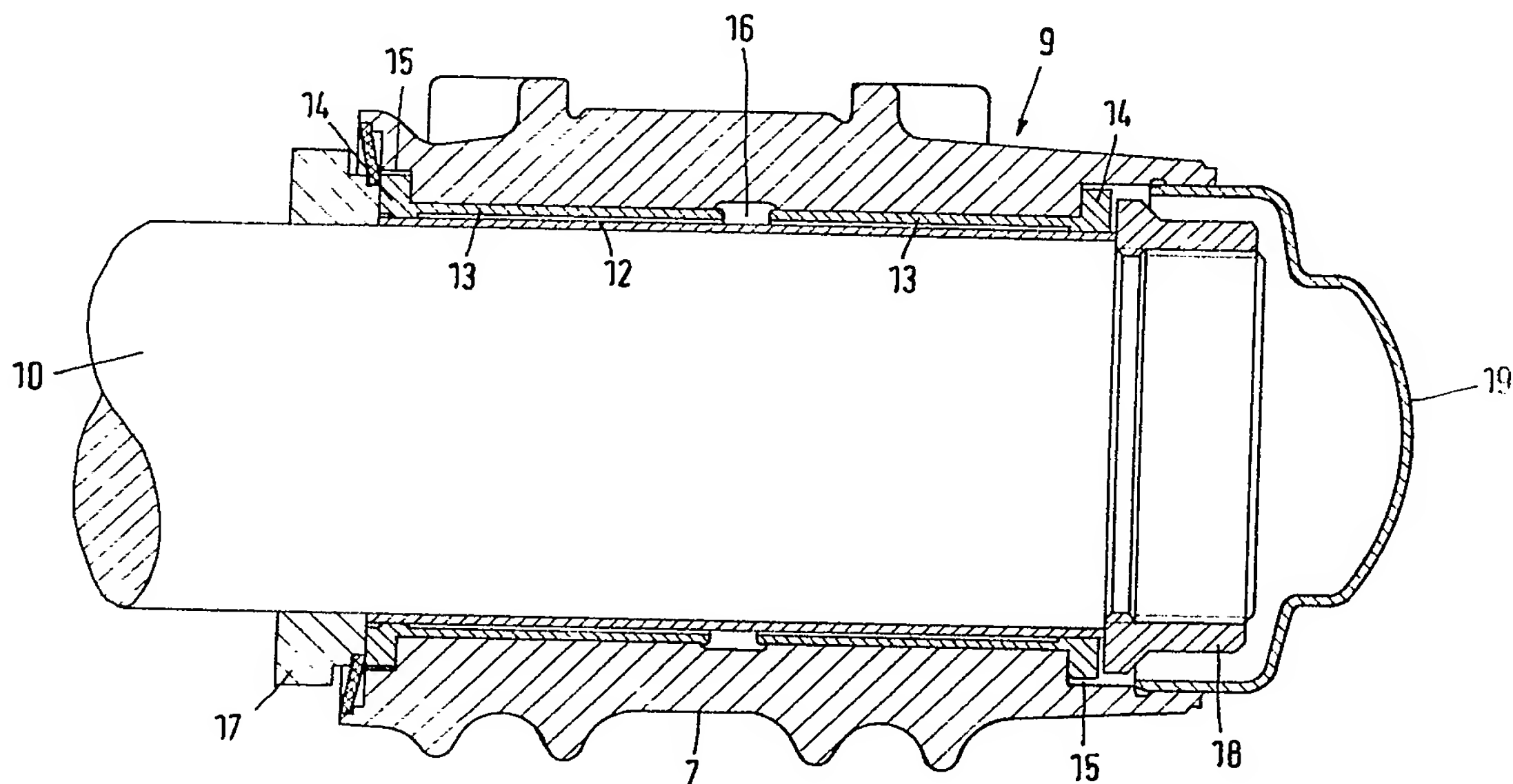
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(54) **Twin-axle unit**

(57) A twin-axle unit for a trailer or semi-trailer comprises leaf springs swingably mounted on a supporting axle 10 on both sides of the vehicle, and two wheel axles fixed at the end portions of said leaf springs, each leaf

spring being mounted at its central portion on the supporting axle by means of a respective slide bearing 9 each slide bearing comprising a steel bushing 12 disposed on the supporting axle. Two plastics bushings 13 are inserted from the sides between the steel bushings and a bearing housing 7, the axial length of each of the plastics bushings being less than half the axial length of the slide bearing. The unit affords easy maintenance of the slide bearings which can also be changed without special tools.

Fig. 3



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Fig. 2

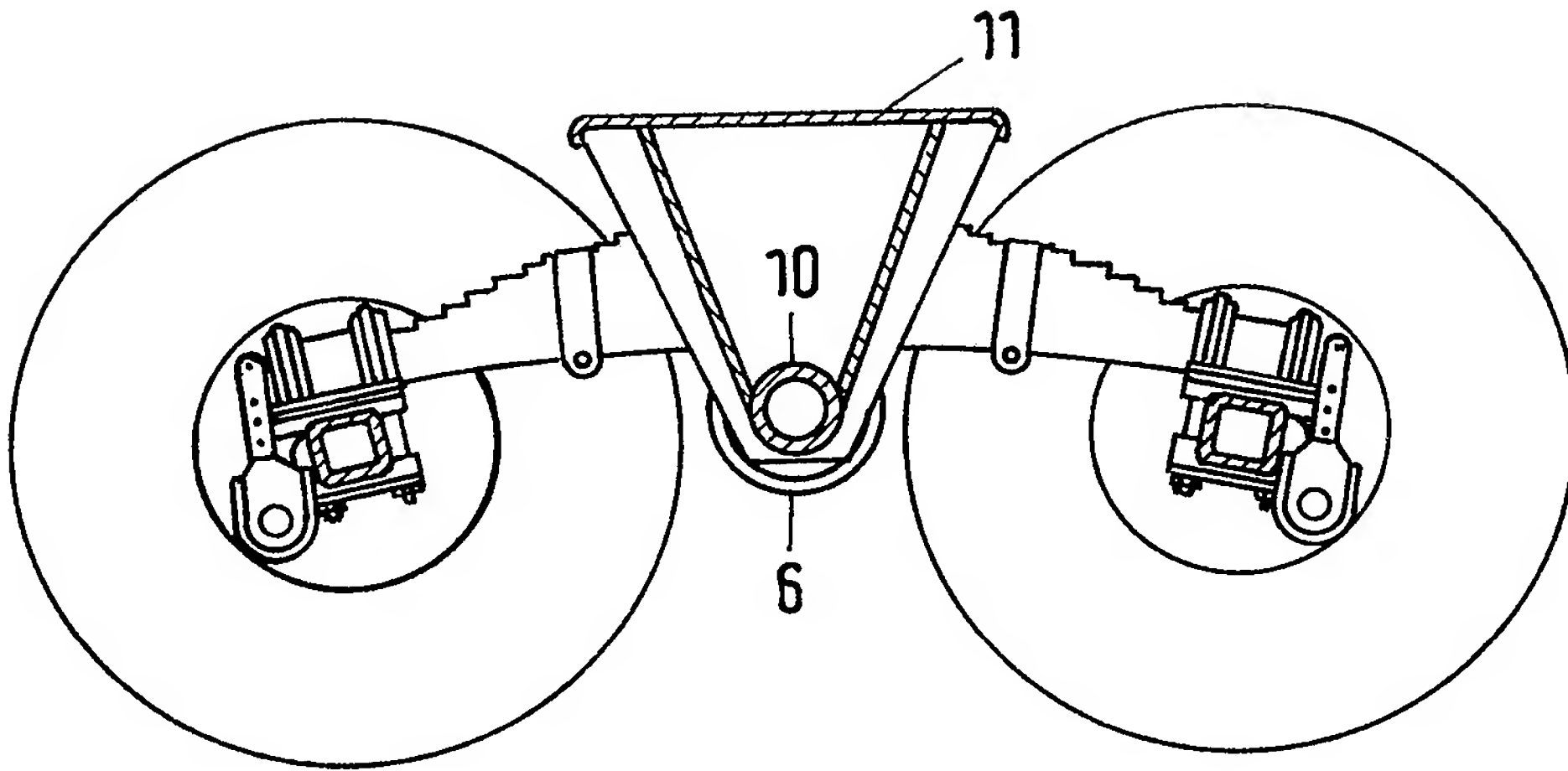


Fig. 1

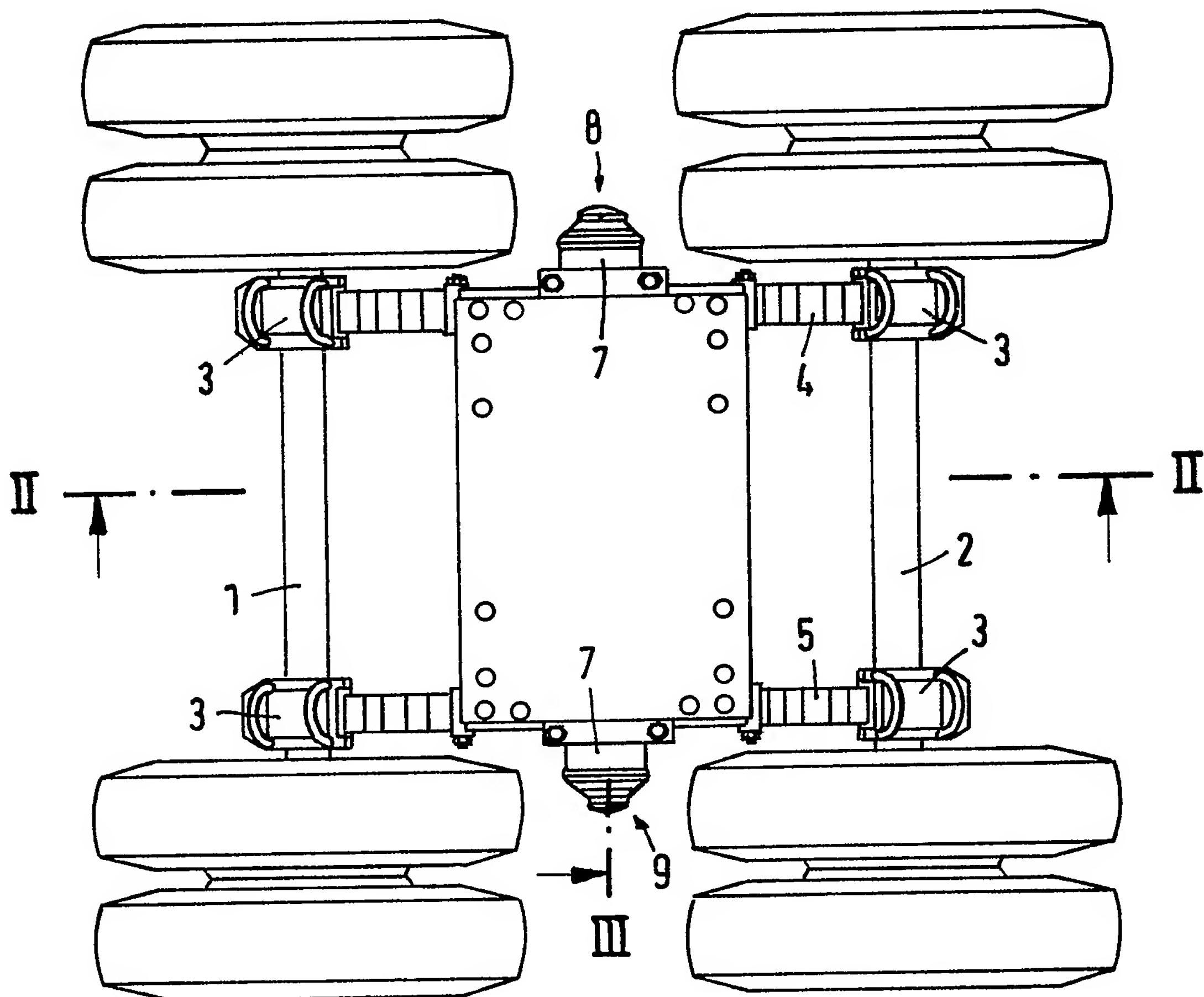
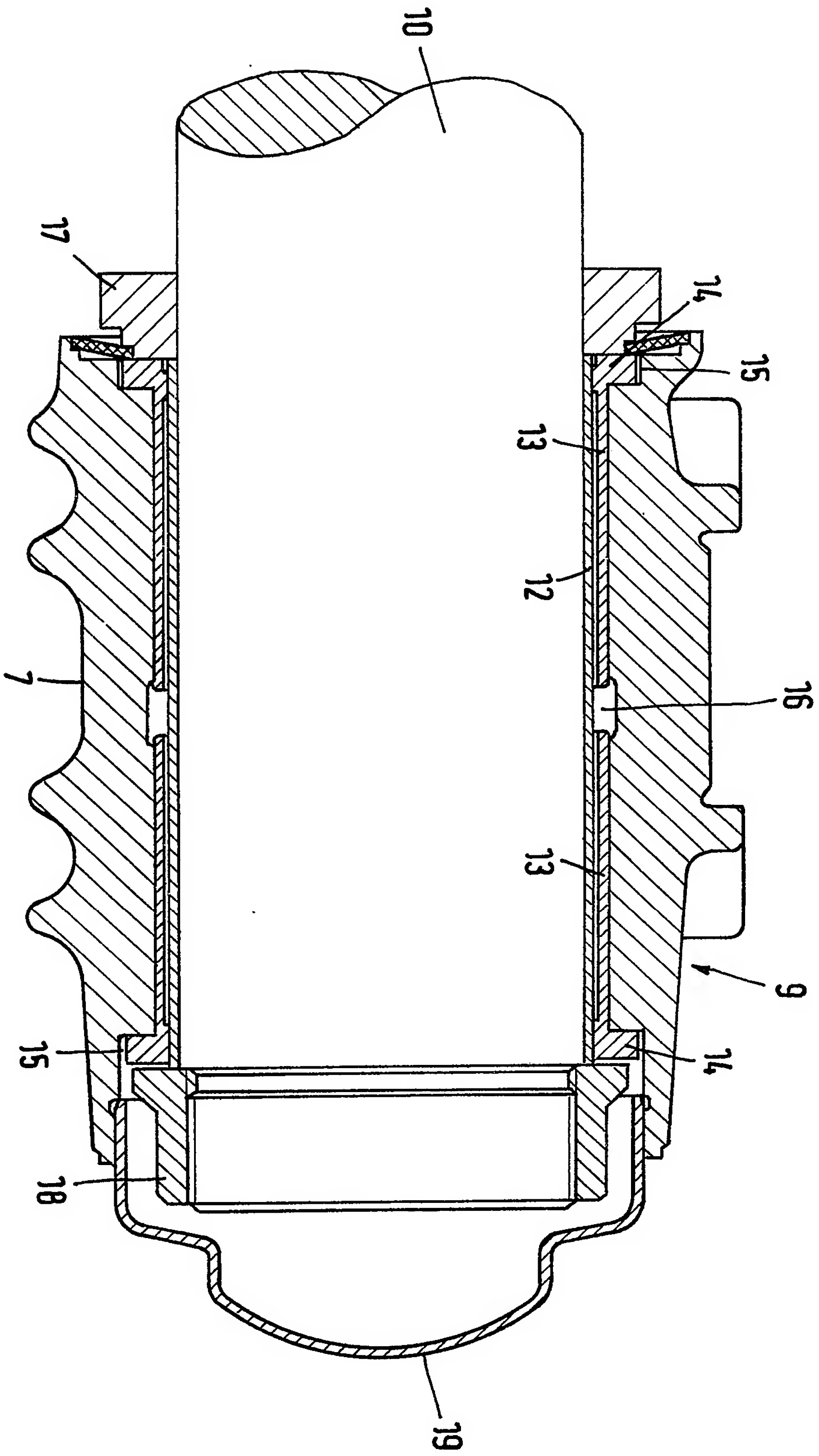


Fig. 3



SPECIFICATION

Twin-axle unit

The invention relates to a twin-axle unit and more particularly to a twin-axle unit for trailers or semi-trailers with leaf springs swingably mounted on a supporting axle on both sides of the vehicle, with the two wheel axles being fixed on the end of the leaf springs by means of leaf-spring housings and spring U-bolts, and the leaf springs each mounted at their centre on the supporting axle by means of a slide bearing.

A twin-axle unit of the type described above has been proposed in German Patent Specification No. 25 56 531. In this twin-axle unit the two leaf springs are mounted each with a solid non-slip rubber bushing pressed-in between a housing and a steel bushing on the supporting axle, the steel bushing being non-rotatingly connected with the supporting axle. When the solid rubber bushing is worn, special tools are required in order to press a new rubber bushing in between the steel bushing and the housing.

Also, twin-axle units of the type described above have been proposed in which the mounting between the supporting axle and the two leaf springs consists of a solid bronze bushing inserted between the supporting axle and the housing. The bronze bushings to be regarded as wearing parts must also be changed from time to time.

In this connection it is necessary to rebuild the supporting axle by deposit welding and subsequent machining, or to replace the entire supporting axle unit, or to adapt the wall thickness of the bronze bushings to the size of the slit between the supporting axle and the housings.

According to the invention, there is provided a twin-axle unit for a trailer or semi-trailer comprising leaf springs swingably mounted on a supporting axle on both sides of the vehicle, and two wheel axles fixed at the end portions of said leaf springs, each leaf spring being mounted at its central portion on the supporting axle by means of a respective slide bearing, each slide bearing comprising a steel bushing disposed on the supporting axle, and two plastics bushings disposed on the supporting axle, and two plastics bushings inserted from the sides between the steel bushing and a bearing housing, the axial length of each of the plastics bushings being less than half the axial length of the slide bearing.

In a preferred embodiment, each plastics bushing has at one end with an outwardly-directed flange which engages in a groove of the housing and takes up the axial forces. The two plastics bushings are preferably made in a wear-resistant polyamide.

An embodiment of the invention will now be described, by way of example only, with reference to the accompanying diagrammatic drawings, in which:

Figure 1 is a plan view of a twin-axle unit in accordance with the invention;

Figure 2 is a section on line II—II of Figure 1; and

Figure 3 is a side-view of a slide bearing in accordance with a section on line III of Figure 1.

The twin-axle unit shown has two wheel axles 1 and 2 which are fixed in angularly stable manner by means of leaf-spring housing 3 and spring U-bolts at the ends of two leaf springs 4 and 5. The two leaf springs 4 and 5 are fixed at the centre with spring U-bolts 6 on housings 7 of slide bearings 8 and 9. The slide bearings 8 and 9 are, for their part, arranged on a supporting axle 10 which can be secured by means of a pedestal 11 of breech design under a vehicle chassis which has not been illustrated.

The two slide bearings 8 and 9 each comprise a steel bushing 12 disposed on the supporting axle 10 firmly braced in the axial direction, and, two plastics bushings 13 inserted from the sides into the gap between the steel bushing 12 and the housing 7. Each plastics bushing 13 has on its external edge a flange 14 by means of which it engages a groove 15 of the housing 7. In the centre between the two plastics bushings 13 a lubricating slot 16 is left free. The steel bushing 12 is clamped between a bearing ring 17 and a locknut 18 on the supporting axle 10. On the outside the slide bearing is sealed by a screw cap 19.

The twin-axle unit particularly described affords the advantage that the wearing parts of the slide bearings on the supporting axle are easy to maintain and also can be changed by the vehicle user without special tools or adaptation of size, the bushings 13 being inserted loosely into the bearing, rather than being a press fit. It is possible to exchange slide bearings fitted with bronze bushings on initial installation with slide bearings constructed as described, when the bronze bushings or supporting axle areas are worn.

In the arrangement shown, each bushing 13 is less than half the axial length of the slide bearings 8, 9. This provides a space between the two bushings which permits length compensation and also serves to define the slot 16 for lubrication purposes.

CLAIMS

1. A twin-axle unit for a trailer or semi-trailer comprising leaf springs swingably mounted on a supporting axle on both sides of the vehicle, and two wheel axles fixed at the end portions of said leaf springs, each leaf spring being mounted at its central portion on the supporting axle by means of a respective slide bearing, each slide bearing comprising a steel bushing disposed on the supporting axle, and two plastics bushings inserted from the sides between the steel bushings and a bearing housing, the axial length of each of the plastics bushings being less than half the axial length of the slide bearing.

2. A twin-axle unit according to claim 1,

wherein that each plastics bushing has at one end an outwardly-directed flange which engages in a groove of the housing.

3. A twin-axle unit substantially as hereinbefore
5 described with reference to the accompanying drawings.

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